

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

- 1 1. (Currently Amended) A method of forwarding a packet comprising:
2 ~~determining a logical grouping of a plurality of virtual private network tunnels based on a~~
3 ~~classification criterion;~~
4 classifying a received packet based on ~~[[said]]~~ at least one classification criterion
5 associated with the packet; [[and]]
6 selecting a logical group of virtual private network (VPN) tunnels from among plural
7 logical groups of VPN tunnels according to a result of the classifying; and
8 ~~based on a result of said classifying;~~ using a selection algorithm associated with said
9 selected logical grouping to determine group of VPN tunnels to select one of said ~~plurality of~~
10 ~~virtual private network~~ VPN tunnels in the selected logical group on which to forward said
11 packet.
- 1 2. (Original) The method of claim 1 wherein said selection algorithm is a table look-up
2 algorithm.
- 1 3. (Original) The method of claim 1 wherein said classifying said received packet
2 comprises inspecting contents of said received packet.
- 1 4. (Currently Amended) The method of claim 1 further comprising:
2 further classifying the received packet based on further classification criterion associated
3 with the received packet; and
4 determining a logical sub-grouping of said ~~plurality of virtual private network tunnels~~
5 VPN tunnels of the selected logical group based on ~~[[a]]~~ the ~~further classification criterion~~
6 classifying; and
7 ~~further classifying said received packet based on said further classification criterion.~~
- 1 5. (Original) The method of claim 1 wherein said selection algorithm includes a traffic
2 balancing algorithm.

6. (Currently Amended) The method of claim 1 wherein said ~~virtual private network~~ VPN tunnels are defined as Multi Protocol Label Switching label switched paths.

7. (Currently Amended) The method of claim 6 wherein said received packet [[has]] includes destination address and said selection algorithm involves determining a label for a network element having said destination address.

8. (Currently Amended) A router ~~operable to~~ comprising:
a processor to:

~~determine a logical grouping of a plurality of virtual private network tunnels~~
~~based on a classification criterion;~~

classify a received packet based on [[said]] at least one classification criterion
associated with the packet; [[and]]

select a logical group of virtual private network (VPN) tunnels from among plural
logical groups according to a result of the classifying; and

~~based on a result of said classifying,~~ use a selection algorithm associated with said
selected logical grouping to determine group of VPN tunnels to select one of said plurality of
~~virtual private network~~ VPN tunnels in the selected logical group on which to forward said
packet.

1 9. (Currently Amended) A computer readable medium containing computer-executable
2 instructions which, when performed by processor in a router, cause the processor to:
3 ~~determine a logical grouping of a plurality of virtual private network tunnels based on a~~
4 ~~classification criterion;~~
5 classify a received packet based on [[said]] at least one classification criterion associated
6 with the packet; [[and]]
7 select a logical group of virtual private network (VPN) tunnels from among plural logical
8 groups of VPN tunnels according to a result of the classifying; and
9 ~~based on a result of said classifying;~~ use a selection algorithm associated with said
10 selected logical grouping to determine group of VPN tunnels to select one of said plurality of
11 ~~virtual private network~~ VPN tunnels in the selected logical group on which to forward said
12 packet.

1 10. – 13. (Cancelled)

1 14. (New) The method of claim 1, wherein selecting the logical group from among the plural
2 logical groups comprises accessing a first table that associates classification criteria with plural
3 logical groups of VPN tunnels.

1 15. (New) The method of claim 14, further comprising:
2 associating plural routing and forwarding tables with the corresponding plural logical
3 groups; and
4 accessing the routing and forwarding table associated with the selected logical group to
5 retrieve a first label usable by a next hop provider edge router to identify a destination of the
6 packet.

1 16. (New) The method of claim 15, further comprising:
2 accessing a second table associated with the selected logical group; and
3 using an address of the next hop provider edge router as a lookup key into the second
4 table to identify a provider backbone network router to route the packet, and to identify a second
5 label usable by the provider backbone network router to identify the next hop provider edge
6 router.

1 17. (New) The method of claim 16, further comprising:
2 pushing the first label and second label onto a label stack of the packet; and
3 forwarding the packet with the label stack to the provider backbone network router.

1 18. (New) The method of claim 17, wherein pushing the first and second labels onto the
2 label stack comprises pushing the first and second labels onto a Multi-Protocol Label Switching
3 (MPLS) stack.

1 19. (New) The router of claim 8, wherein the processor is operable to further:
2 select the logical group from among the plural logical groups by accessing a first table
3 that associates classification criteria with plural logical groups of VPN tunnels.

1 20. (New) The router of claim 19, wherein the processor is operable to further:
2 associate plural routing and forwarding tables with the corresponding plural logical
3 groups; and
4 access the routing and forwarding table associated with the selected logical group to
5 retrieve a first label usable by a next hop provider edge router to identify a destination of the
6 packet.

1 21. (New) The router of claim 20, wherein the processor is operable to further:
2 access a second table associated with the selected logical group; and
3 use an address of the next hop provider edge router as a lookup key into the second table
4 to identify a provider backbone network router to route the packet, and to identify a second label
5 usable by the provider backbone network router to identify the next hop provider edge router.

1 22. (New) The router of claim 21, wherein the processor is operable to further:
2 push the first label and second label onto a label stack of the packet; and
3 forward the packet with the label stack to the provider backbone network router.

1 23. (New) The computer-readable medium of claim 9, wherein selecting the logical group
2 from among the plural logical groups comprises accessing a first table that associates
3 classification criteria with plural logical groups of VPN tunnels.

1 24. (New) The computer-readable medium of claim 23, wherein the instructions when
2 executed cause the processor to further:
3 associate plural routing and forwarding tables with the corresponding plural logical
4 groups; and
5 access the routing and forwarding table associated with the selected logical group to
6 retrieve a first label usable by a next hop provider edge router to identify a destination of the
7 packet.

1 25. (New) The computer-readable medium of claim 24, wherein the instructions when
2 executed cause the processor to further:
3 access a second table associated with the selected logical group; and
4 use an address of the next hop provider edge router as a lookup key into the second table
5 to identify a provider backbone network router to route the packet, and to identify a second label
6 usable by the provider backbone network router to identify the next hop provider edge router.

- 1 26. (New) The computer-readable medium of claim 25, wherein the instructions when
2 executed cause the processor to further:
3 push the first label and second label onto a label stack of the packet; and
4 forward the packet with the label stack to the provider backbone network router.